1. Introduction

- In Indian agriculture, tractors usage increased from tillage to threshing and cleaning.
- In general, mould board plough and disc plough are used for primary tillage operations in India.
- In recent past, adoption of newly designed implements like subsoiler and five tyne cultivator are popular among the farmers in Tamil Nadu.
- Lack of adequate knowledge on these implements, farmers are utilizing these implements for tillage operations irrespective of the soil condition and depth of ploughing required for the crops to be grown.

2. Materials and Methods

- Measurement of force on tillage implements
  The quasi static analysis of the forces on a tractor implement system is done.

- Design of three-point hitch dynamometer
  A three-point hitch dynamometer was developed as an universal three-point dynamometer i.e., it can be fitted to any tractor–implement combination.

3. Study of Forces Acting on the Mounted Implements

- Study of forces acting on the tillage tool during field test

4. Results and Discussion

- Specific Draft at selected levels of depth of operation (D) moisture content (M) and forward speed (F) for developed duck foot type plough for clay soil

5. Conclusions

- Salient features of developed duck foot type plough
  1. Better furrow profile than conventional duck foot type plough.
  2. Actual field capacity of the developed prototype - 0.84 ha h⁻¹.
  3. Cost of operation of the machine -  INR.1083 ha⁻¹.
  4. The savings in cost of plough with developed unit - INR. 1257  ha h⁻¹.
  5. It was 29.11 per cent lesser than conventional duck foot type plough.